National Cancer Institute

caBIG cancer Biomedical Informatics Grid®

"The Role of International Collaborations in 21st Century Research"

caBIG® Podcast Network

Moderator:

Welcome to the caBIG® Podcast Network. In this podcast, we will discuss research trends in the US and internationally, and the emergence of new models of 21st century biomedical research.

Joining us today are Dr. Ken Buetow, a geneticist and head of the National Cancer Institute's bioinformatics program and visionary for its caBIG® effort; and Dr. Gregory Downing, Program Director for the Personalized Health Care Initiative within the U.S. Department of Health and Human Services.

Welcome to both of you and thank you for joining us today.

Dr. Buetow:

Thank you for having us. It's a pleasure to participate.

Dr. Downing:

Thank you; it's an honor to join this discussion today.

Moderator:

To set the stage, Dr. Buetow, can you tell us about the recent conference in the United Kingdom called "Bioinformatics Without Borders" - what was that about and who attended?

Dr. Buetow:

The Bioinformatics Without Borders conference is an ongoing interaction that the United States' National Cancer Institute has with our partner organization, the National Cancer Research Institute from the United Kingdom.

So what we had is an approximately 50 to a hundred individuals participating from both sides of the ponds who are interested in joint solutions to common problems in biomedical informatics across the cancer spectrum.

Moderator:

Dr. Buetow, what did you find most striking about the conference this year in terms of research and how it's changing in the 21st Century? In other words, what was discussed there that you wouldn't have heard two, five or even ten years ago?

Dr. Buetow:

Well what we're starting to see is the actual fruition of the investments of time, effort, and imagination that individuals have been making over the last several years to bring information technology to bear in the solution of important problems in cancer and, I think the thing that had me most excited about this conference and the type of work that was being presented is the actual boots on the ground, real applications that are in place now.

Moderator:

Dr. Downing, you lead a special initiative at the Department of Health and Human Services to advance personalized medicine. Why did you attend the conference, and what did you find most interesting about it?

Dr. Downing:

Well, this was a fascinating opportunity for us. Our group has been looking at the integration of the science and technology that underpins personalized medicine and personalized healthcare into healthcare practices and the oncology field is one of those areas that's moving most rapidly into the adoption of these individualized approaches to medicine.

So, it was a really great learning opportunity for me and an opportunity to network with some of our colleagues across the Atlantic in particular, given the diversity of our healthcare delivery systems in the US and the UK, finding common applications to problems and ultimately accomplishing and taking that, the science around personalized medicine into the healthcare delivery system.

Moderator:

Dr. Downing, what are the implications of what you just described, for research already underway here in the United States?

Dr. Downing:

Well, I think that the understanding of science at an individual level and cancer in particular, is going to require a substantial amount of data, and the integration into practice will require a great deal of different conditions and ways in which this is applied, and that includes various ways in which healthcare is delivered in the US.

For example, one of the things that was announced at the meeting or at least showcased, was the oncology information exchange in the UK and how this has built off from some of the caBIG® platforms, but really connects a lot of the cancer programs in the UK together. So I think we can learn a lot and apply that to very diverse healthcare systems here as means to break through some of the institutional organizational barriers that our healthcare delivery system in the US presents right now.

Moderator:

Dr. Buetow, what role is caBIG® playing in this international shift toward new models and tools for research?

Dr. Buetow:

Well I think as Greg has appropriately pointed out, information technology is a prerequisite for us to be able to do much of what is the new personalized medicine agenda and the 21st Century research approach combining individual pieces in individual communities in novel ways that just couldn't be done in the absence of information technology. caBIG® gives us that capability.

Greg has already mentioned the ONIX infrastructure that our colleagues at the UK have built, the oncology information exchange that allows individual investigators to sit down and literally have the world's information at their fingertips, especially as it relates to oncology. The exciting thing is that that piece of application—that infrastructure that is so empowering to the 21st Century model—leverages caBIG® technology and could only be done in an international partnership.

Moderator:

Dr. Buetow, what other international collaborations is caBIG® pursuing, and what do you expect to see emerge from those in coming years?

Dr. Buetow:

Well the National Cancer Institute and caBIG® are working in a variety of different international settings. We just recently visited India, where we met with members of the government, members of the private sector, as well as members of academic institutions to explore how we could be working together literally halfway around the globe, but connected in real time through information technology.

We're working in the People's Republic of China to help support the conduct of multinational clinical trials as well as deploy common information technology to support their basic science research. We're working with colleagues in Latin America, specifically trying to explore how we can partner to conduct and bring next generation clinical trials to their local populations, and recognizing that basically cancer knows no boundaries, and intellect and insight in innovation also is an international commodity.

Moderator:

This is a question for both of you—what trends do you see in international collaborations that are different from the past, and how will they shape the research and clinical care of the future?

Dr. Buetow:

In the presence of cutting-edge connectivity—the type of information technology and capabilities that the caBIG® network provides—suddenly the challenges of being separated by miles vanish, and we're connected at the speed of light. So, novel insights, whether they occur in China, India, Latin America, or the United States or the UK, are instantaneously accessible to everyone. So the rate of progress in developing new therapeutics and translating them into care delivery can be expedited and our capacity to ask and answer new questions becomes unlimited.

Dr. Downing:

Yeah, I'd just like to add a couple experiences from this meeting. One of them is a software enterprise, basically built off of social media networking capabilities which enables investigators to share best information about the tools and ways in which research is done.

Another is the notion of new clinical trials designs to accommodate individual variations in cancer and treatment options, so the clinical trial design starts to set the stage for what gets translated into healthcare in the future to enable personalized medicine.

I think one pinnacle that I would like to see climbed in the very near future is the ability to do international clinical trial data sharing. That would improve the

efficiency in the process and deal a lot with some of the time and cost barriers that we have in modern clinical development.

Moderator:

Can you talk to some of the challenges of doing international research and how caBIG® can help to address some of those?

Dr. Buetow:

Well historically, the challenges we have relate to differences in time zones, differences in culture, and in some instances, differences in the governance and government. caBIG® solves and helps address some of these problems in multiple ways. Because it's fundamentally electronic, then we can essentially move information and capabilities across borders, without having to worry about time zones, without having to worry about how we aggregate in person and individual places.

caBIG® creates a virtual community where each nation, each institution within each nation, and each community can then interact in novel ways that heretofore were blocked by legal, cultural, and physical barriers that separated them.

Dr. Downing:

These elements of international research have implications for us at home as well, from the cancer patient or the clinical trials participant. This enables us to look at problems such as the distances that some cancer patients have to go to to get their care—the rural health issues, health disparities. Many aspects of populations that are coming from different parts of the world in which there are cultural and nutritional differences and so forth, so this knowledge base enhances how we practice medicine here in this country as well. Without this connected capability, we won't be able to have those kinds of insights in the cancer care that we provide in the future.

Moderator:

Dr. Buetow and Dr. Downing, is there anything else you would like to talk about or discuss in relation to the conference that occurred or international collaborations in general?

Dr. Downing:

I think one thing that I really was struck by at this meeting is the degree of connectivity and collective thinking and team science that goes a long ways from what most of us were trained in, in environments for biomedical research. And I think that caBIG® and collaborations have matured from the standpoint of moving beyond basic science and also encompassing clinical trials and clinical outcomes.

Dr. Buetow:

I think that the realization of 21st Century biomedicine is essentially enabled by the availability of this type of infrastructure that we're attempting to build in the cancer biomedical informatics grid, and it's exciting that we're having increasing large international community all joining forces together, united through our technology platforms to address these vexing problems.

Moderator:

Thank you both so much for joining us today. This concludes our podcast on the role of international collaborations in driving us toward new models for 21st Century research and care. For more information on caBIG® please visit cabig.cancer.gov.